UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,914	09/25/2003	Avneesh Agrawal	030059	7047

23696 7590 12/21/2005

QUALCOMM, INC
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
BAYARD, EMMANUEL	
ART UNIT	**PAPER NUMBER**
2638	

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/608,914	AGRAWAL, AVNEESH	
	Examiner	Art Unit	
	Emmanuel Bayard	2638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 7-30* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-5, 7-13, 19-26, 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dehner et al U.S. Patent No 6,882,677 B2 in view of Park U.S. Patent No. 6,657,985 B1

As per claim 1, 13, 19-20, 26 Dehner et al teaches a method of managing interference in a wireless frequency hopping (FH) communication system, comprising: obtaining a first FH function (see abstract and col.4, lines 10-20 and col.12, lines 4-10); obtaining an ID is the same as the claimed (identifier) (see col.3, lines 33-35 and col.5, lines 43-45 and col.9, lines 9-11) for a local channel transceiver is the same as the claimed (first traffic channel) (see figs.1, 3 elements 145, 345 and col.5, lines 2-3, 18-20, 62-63) defined with the first FH function; modifying a second FH function based on the first FH function and the identifier for the first traffic channel to obtain a modified second FH function, (see col.4,lines 23-25 and col.5, lines 25-50 and col.6,lines 53-60 and col.11, lines 25-40) wherein the second FH function is modified such that a second local channel transceiver is the same as the claimed (second traffic channel) (see figs.1, 3 elements 165, 365 and col.5, lines 29-30, 62-63) defined with the modified second FH

function; and using the second traffic channel for data transmission (see fig.1 element T1 or T2 and col.7, lines 15-17).

However Dehner et al does not teach the first traffic channel and second traffic channel are orthogonal or have low correlation.

Park teaches the first hopping channel and second hopping channel are orthogonal are the same as the claimed (the first traffic channel and second traffic channel are orthogonal) (see abstract and col.2, lines 9-55).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Park into Dehner as to accurately restore the digital signals as taught by Park (see abstract and col.3, lines54-55).

As per claim 3, Dehner et al does teach, wherein the first FH function is for a first transceiver is the same as the claimed (first base station) (see fig.1 element 141) in the system and the second FH function is for a second transceiver is the same as the claimed second base station (see fig.1 element 161) in the system.

As per claim 4, Dehner et al and Park in combination would teach wherein the first FH function is used for broadcast by at least two base stations in the system, and wherein the first traffic channel is used to transmit broadcast data as to facilitate handoff from network access point which is constructed to provide service to a communication unit.

As per claim 5, Dehner et al does teach obtaining an identifier for a third traffic channel defined with the second FH function, wherein the third traffic channel is associated with the first traffic channel, and wherein the second FH function is further

modified based on the identifier for the third traffic channel (see figs. 1-3, 5 elements 107, 207, 307).

As per claim 7, Dehner et al does teach, wherein the identifiers for the first, second, and third traffic channels are obtained via over-the-air signaling (see fig.1 and col.10, lines 1-2).

As per claim 8, Dehner et al and Park in combination would teach wherein the first traffic channel is associated with a first sequence of subbands determined by the first FH function and the identifier for the first traffic channel, and wherein the second traffic channel is associated with a second sequence of subbands determined by the modified second FH function and an identifier for the second traffic channel as to facilitate handoff from network access point which is constructed to provide service to a communication unit.

As per claims 9, 22 Park teaches wherein the first and second FH functions are defined by first and second time shifts, respectively, of a pseudo-random number (PN) code (see figs. 2a, 2b elements 13, 23 and col.3, lines 35, 44). Furthermore implementing such teaching into Dehner et al would have been obvious to one skilled in the art as to accurately restore the digital signals as taught by Park (see abstract and col.3, lines54-55).

As per claims 10, Dehner et al does teach wherein the second traffic channel is used for data transmission on a forward link (see col.9, lines 34-35 and col.12, lines 40-41) from a base station to a terminal.

As per claim 11, Dehner et al and Park in combination would teach wherein the second traffic channel is used for data transmission on a reverse link from a terminal to a base station as to facilitate handoff from network access point, which is constructed to provide service to a communication unit.

As per claims 12, 25 Park orthogonal Hopping (see abstract). Furthermore implementing such teaching to perform an orthogonal frequency division multiple access (OFDMA) in the wireless communication system of Dhener would have been obvious to one skilled in the art as to accurately restore the digital signals as taught by Park (see abstract and col.3, lines 54-55).

As per claim 21, Dehner et al does teach wherein the second base station is associated with a third FH function for defining a third traffic channel (see figs. 1-3 element 107, 207, 307) used for communication with the second base station. Furthermore combining such teaching with the Pseudo random orthogonal teaching of Park to perform wherein the second and third FH functions are orthogonal or have low correlation, and wherein the first FH function is pseudo-random with respect to the third FH function would have been obvious to one skilled in the art as to accurately restore the digital signals as taught by Park (see abstract and col.3, lines 54-55).

As per claim 23, Dehner et al does teach wherein the first traffic channel is used to send a first transmission on a forward link from the first base station to a terminal, and wherein the second traffic channel is used to send a second transmission on the forward link from the first and second base stations to the terminal (see figs. 1-3 and col.9, lines 34-35 and col.12, lines 40-41).

As per claim 24, Dehner et al and Park in combination would teach wherein the first traffic channel is used to send a first transmission on a reverse link from a terminal to the first base station, and wherein the second traffic channel is used to send a second transmission on the reverse link from the terminal to the first and second base stations as to facilitate handoff from network access point which is constructed to provide service to a communication unit.

As per claims 28 and 30, Dehner et al teaches method of managing interference in a wireless frequency hopping (FH) communication system, comprising: receiving a first transmission on a first traffic channel from a first base station, wherein the first traffic channel is defined with a first FH function associated with the first base station (see abstract and fig.1 element R1 col.4, lines 10-20 and col.12, lines 4-10); and receiving a second transmission on a second traffic channel from the first base station and a second base station, wherein the second traffic channel is defined with a second FH function (see fig.1 element R2 and col.4, lines 23-25 and col.5, lines 25-50 and col.6,lines 53-60 and col.11, lines 25-40), wherein a third FH function (see figs. 1-3 elements 107 or 207 or 307) is associated with the second base station.

However Dehner et al does not teach wherein the second FH function is orthogonal to or has low correlation with both the first and third FH functions, and wherein the first FH function is pseudo-random with respect to the third FH function.

Park teaches wherein the second FH function is orthogonal to or has low correlation with both the first and third FH functions, and wherein the first FH function is

pseudo-random with respect to the third FH function (see abstract and col.2, lines 9-55 and figs. 2a, 2b elements 13, 23 and col.3, lines 35, 44).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Park into Dehner as to accurately restore the digital signals as taught by Park (see abstract and col.3, lines 54-55).

As per claim 29, Dehner et al and Park in combination would teach wherein the second transmission includes broadcast data as to facilitate handoff from network access point, which is constructed to provide service to a communication unit.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dehner et al U.S. Patent No 6,882,677 B2 in view of Park U.S. Patent No. 6,657,985 B1 and in further view of Shin U.S. Patent No 6,075,990.

As per claim 2, Dehner et al and Park in combination teach all the features of the claimed invention except wherein the first FH function is used for users in soft handoff with at least two base stations in the system, and wherein the second FH function is used for users not in soft handoff and in communication with one of the at least two base stations.

Shin teaches wherein the first FH function is used for users in soft handoff with at least two base stations in the system, and wherein the second FH function is used for users not in soft handoff and in communication with one of the at least two base stations (see fig.4 elements 410 and 411 and col.8, lines 26-50).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Shin into Kolev and Park as to determine when the mobile station has been moved to the FH frequency group area as taught by Shin (see col.8, lines 26-50).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 14-18 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolev et al U.S. Patent No 6,377,801 B1 in view of Park U.S. Patent no 6,657,985 B1.

As per claims 14 and 27, Kolev et al teaches an apparatus in a wireless frequency hopping (FH) communication system, comprising: a processor operative to obtain a first FH function (see fig.3 element 302 and col.5, line 28) and a suspension code is the same as the claimed (identifier) (see col.2, lines 40-45 and col.5, line 29) for a first traffic channel (see fig.3 element 320a and col.5, line 36) defined with the first FH function, modify a second FH function (see fig.3 element 303 and col.5, line 28) based on the first FH function and the identifier for the first traffic channel to obtain a modified second FH function, an provide an FH sequence for a second traffic channel (see fig.3 element 320d and col.6, line 6) defined with the modified second FH function,; and a switch operative to determine a particular one of a plurality of frequency subbands (is inherently taught by Kolev's switching center) to use in each of a plurality of frequency hop periods based on the FH sequence for the second traffic channel (see figs.3, 5 element 315 and col.5, lines 21-50 and col.6, lines 9-25).

However Kolev et al does not teach the first traffic channel and second traffic channel are orthogonal or have low correlation.

Park teaches the first hopping channel and second hopping channel are orthogonal are the same as the claimed (the first traffic channel and second traffic channel are orthogonal) (see abstract and col.2, lines 9-55).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Park into Kolev as to accurately restore the digital signals as taught by Park (see abstract and col.3, lines54-55).

As per claim 15, Kolev does teach a modulator operative to modulate data for

the second traffic channel (see col.4, line 50). Furthermore implementing such teaching to provide modulation symbols, and wherein the switch is operative to provide the modulation symbols to subbands determined by the FH sequence for the second traffic channel would have been obvious to one skilled in the art as to accurately initiate a call or response to a page.

As per claim 16, Kolev does teach a demodulator (see col.4, line 50). Furthermore implementing such teaching to obtain, from the switch, received modulation symbols on subbands determined by the FH sequence for the second traffic channel and to demodulate the received modulation symbols to provide demodulated data for the second traffic channel as to accurately initiate a call or response to a page.

As per claim 17, Kolev does teach a terminal (see col.2, line 31) comprising the apparatus of claim 14.

As per claim 18, Kolev does teach a satellite radiotelephone is the same as the claimed (base station) (see fig.2 element 200 and col.4, line 7) comprising the apparatus of claim 14.

Allowable Subject Matter

7. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Arai et al U.S. Patent No 5,907,545 teaches a wireless communication apparatus and method.

Mattison U.S. Patent No 6,246,713 B1 teaches a frequency hopping.

Bauchot et al U.S. Patent No 6,031,864 teaches a method and system for controlling the time occupation.

Cho et al U.S. Patent No 6,658,044 B1 teaches a frequency hopping communication.

Liu et al U.S.Pub No 2004/0258136 A1 teaches a fast synchronization for half duplex.

Maric US Pub No 2004/0161018 A1 teaches a frequency hop sequences.

Median et al U.S. patent No 5,506,863 teaches a method and apparatus for operating with a hoping control channel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vanderpuye Kenneth can be reached on 571 272 3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2638

12/14/05

EMMANUEL BAYARD
PRIMARY EXAMINER